

**GUT CONTENTS OF COMMON HOUSE GECKO, *HEMIDACTYLUS FRENATUS* (SCHLEGEL, 1836) IN JAHANGIRNAGAR UNIVERSITY CAMPUS, SAVAR, BANGLADESH**

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**Abstract:** Gut contents of Common House Gecko (*Hemidactylus frenatus*) collected from Jahangirnagar University campus, Savar, Dhaka were analysed. Sixteen different food items were identified of which most were insects. Insects from the order Orthoptera were the highest (32.66%) followed by the Coleopterans (18.36%), Diptera (14.28%), Hymenoptera (10.20%), Homoptera (10.20%), Lepidoptera (8.16%) and Hemiptera (6.14%). It is evident that the *H. frenatus* plays an important role in biological pest control consuming 39.13% insects which are harmful to crops, fruits and vegetables; 19.56% insects responsible for plant damage, 8.56% insects injurious to cotton, 6.52% garden pests, 6.52% were house hold pests, 4.32% destructive to plant seeds and roots of beans and cereals and remaining 15.21% were useful insects. Female consumed more than males.

**Key words:** Feeding Behavior, Pest Control, Insects, Lizard

**INTRODUCTION**

There are many different species of house geckos, the most common being Spotted House Lizard, *Hemidactylus frenatus*. They can be found in many different tropical countries around the world originally from South East Asia and have been introduced to many other countries like Eastern Africa, New Guinea, Mexico, Madagascar and Australia.

Different factors affect the diet of lizards, including an ontogenetic shift in prey preferences, body size, sex and foraging tactic (Huey and Planka 1981; Pianka, 1986; Zaluar and Rocha 2000, Rocha and Anjos 2004). The size of feeding structures can influence or at least limit the type and size of prey that may be ingested. As a result, mouth size may affect diet composition which may result in differences between males and females and/or between the young and adults (Preest, 1994; Teixeira-Filho *et al.*, 2003).

Active foraging lizards tend to consume relatively sedentary prey in the environment. The Common House Gecko is an agile nocturnal lizard often seen running along walls, in search of moths and other insects. (Huey and Planka, 1981; Magnusson *et al.*, 1985; Bergallo and Rocha, 1994 and Rocha and Anjos, 2007).

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In Bangladesh, very few researches have been conducted on the food preference of *Hemidactylus*. Therefore the present study was designed to examine the gut content of *Hemidactylus frenatus* and assess their food preferences.

### MATERIAL AND METHODS

Forty House Gecko were collected during 7pm - 10pm using sweeping nets from different sites of the study area. The collected specimens were instantly killed by using chloroform to stop digestion and preserved in formaldehyde (10% w/v) solution. The alimentary canal of each animal was dissected and the gut contents were analysed. The consumed foods from digestive tracts of the specimens were separated by opening the abdomen and necessary measurements were taken. After dissection, the foods from alimentary canals were preserved in 5% formaldehyde (w/v) solution for their identification. Both qualitative and quantitative analyses of the consumed foods were carried out.

### RESULTS AND DISCUSSION

The Common House Gecko, *Hemidactylus frenatus*, were found to be carnivorous and mainly prefer insects as their food. They were found to consume 16 different types of food items (Table 1).

The respective percentage composition of the insects were Othoptera (32.66%) Diptera (14.28%), Hymenoptera (10.20%), Coleoptera (18.36%), Homoptera (10.20%), Hemiptera (6.14%) and Lepidoptera (8.16%).

It was evident that they consumed 39.13% insects which are injurious to crops, fruits and vegetables, 19.56% insects are injurious to plants, 8.59% insects injurious to cotton, 6.52% of garden pests, 4.43% destructive to plant seeds and roots of beans and cereals, 6.56% were household pests and remaining 15.21% were useful insects. Among these, 2 families of insects were beneficial and 8 families of insects were harmful both in agriculture and public health.

Powell *et al.* (1990) observed that all food items of *Hamidactylus brookii* were arthropods (small amount of plant materials and grit were presumed to have been ingested adventitiously during prey capture). Lepidoptera (45.6%), Dipterans (24.8%), dominated all food categories, followed by Homopterous (10.1%), Coleopterans (6.7%), Araneae (4.0%), Dictyoptera (2.7%), Orthoptera (2.0%), Hymenoptera (1.3%), Dipterans larvae (1.3%) and Isoptera (1.3%).

Table 1. Insects identified in the gut of *Hemidactylus frenatus* and their economic importance

Order	Family	English name	Scientific name	Economic Important
Orthoptera	Gryllidae	House Cricket	<i>Acheta domestica</i>	Injurious to crops, fruits and vegetables
	Gryllidae	Field Cricket	<i>Gryllus sp.</i>	
	Gryllotalpidae	Mole Cricket	<i>Gryllotalpa hexadactyla</i>	
Diptera	Muscidae	House fly	<i>Musca domestica</i>	Household pest
	Formicidae	Lager black ant	<i>Monomorium sp.</i>	Useful (including scavengers)
Hymenoptera	Formicidae	Common black ant	<i>Camponotus sp</i>	
	Formicidae	Small Red House Ant	<i>Solenopsis sp</i>	
	Elateridae	Click Beetle	<i>Ctenicera noxia</i>	Destructives to plant seed and roots of beans, cotton , cereal
	Coccinellidae	Lady Bird Beetle	<i>Epilachna variveatis</i>	Garden pest
Homoptera	Scarabaeidae	Dung Beetle	<i>Phanaeus vindex</i>	Useful (including scavengers)
	Scarabaeidae	June Beetle	<i>Phyllophaga sp</i>	
	Cicadellidae	Leaf Hopper	<i>Comelthus comma</i>	Injurious to plant
Hemiptera	Lygaeidae	Chinch Bug	<i>Blissus suturellus</i>	Injurious to crops, fruits and vegetables
	Pyrrhocoridae	Red Bug	<i>Dysdercus suturellus</i>	Injurious to cotton
Lepidoptera	Unknown	Moth	<i>Unknown</i>	
	Unknown	Moth	<i>Unknown</i>	

From the results of the present study it may be noted that the house geckos were carnivorous specially insectivorous. The mean weight of consumed food was 0.1305 g for a single house gecko. It was also noted that the females took more food than the males and the respective food consumption by a female and male was 0.1672 g and 0.1165 g. It may be concluded that *Hemidactylus frenatus* act as a biological control agent of pest of crops, fruit, vegetables, plant seeds, cotton, garden pest, cereal, house hold pest.

#### LETTERATURE CITED

- BERGALLO, H.G. and ROCHA, C.F.D. 1994. Spatial and Trophic Niche differentiation in two sympatric Lizards (*Tropidurus torquatus* and *Cnemidophorus ocellifer*) with Different Foraging Tactics, *Aust. J. Ecol.* **19**: 72-75.
- HUEY, R.B. and PIANKA, E.R. 1981. Ecological Consequences of Foraging Mode, *Ecology*, **62**: 991-999.
- MAGNUSSON, W.E., PAIVA, L.J., ROCHA, R.M., FRANKE, C.R., KASPER, L.A. and LIMA, A.P. 1985. The Correlates of Foraging Mode in a Community of Brazilian Lizards, *Herpetologica*, **41**: 324-332.
- POWELL, R., J.S. PARMERLEE, JR., RICE, M.A. and D.D. SMITH. 1990. Ecological Observations of *Hemidactylus brookii haitianus* Meerwarth (Sauria: Gekkonidae) from Hispaniola. *Carib. J. Sci.* **26**: 67-70.
- PIANKA, E.R. 1986. *Ecology and Natural History of Desert Lizards*, Princeton University Press, Princeton.
- PREEST, M.R. 1994. Sexual Size Dimorphism and Feeding Energetics in *Anolis carolinensis*: why do females take smaller prey than males? *J. Herpetol.* **28**(3): 292-294.
- ROCHA, C.F.D. and ANJOS, L.A. 2007. Feeding Ecology of a Nocturnal Invasive Alien Lizard Species, *Hemidactylus mabouia* Moreau de Jonnès, 1818 (Gekkonidae), living in an outcrop rocky area in southeastern Brazil", *Brazilian Journal of Biology*, **67**(3):
- TEXEIRA-FILHO, P.F., ROCHA, C.F.D. and RIBAS, S.C. 2003. Relative Feeding Specialization may Depress Ontogenetic, Seasonal and Sexual Variations in Diet: the Endemic Lizard *Cnemidophorus littoralis* (Teiidae). *Brazilian J. Biol.* **63**(2): 321-328.
- ZALUAR, H.L.T. and ROCHA, C.F.D. 2000. Ecology of the wide Foraging Lizard *Ameiva ameiva* (Teiidae) in a Sand Dune Habitat of Southeast Brazil: Ontogenetic, Sexual and Seasonal Trends in Food Habits, Activity, Thermal Biology and Microhabitat Use, *Ciência, Cultural J. Brazilian Assoc. Adv. Sc.* **52**(2): 101-107.

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